II. List of Claims

Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application.

1. (Currently amended) A seat spring assembly for a seat base for supporting a sitting load comprising:

a frame having a first and a second frame end with first and second sides connected to the first and second transverse frame ends;

a plurality of flat leaf springs having leaf spring first ends connected to the first frame end and leaf spring second ends connected to the second frame end;

each leaf spring having one V arch adjacent the leaf spring first end and one W arch adjacent the leaf spring second end;

said V arch being oriented on a first vertical axis so that it opens upwardly and said W arch being formed in two segments, each segment being oriented on a second and third vertical axis so that said W arch opens upwardly;

each leaf spring has a substantially flat center portion extending longitudinally and aligned horizontally to define a seating support surface upon which said load is borne;

said V arch and said W arch flexing in response to said sitting load wherein said load is substantially aligned with said first, second and third vertical axes;

a cross piece, said cross piece spanning and substantially perpendicularly interconnecting said leaf spring second ends, said leaf spring second ends being attached to said cross piece so that said flat leaf springs are supported solely at said first and second ends; and

a plurality of coil springs, said coil springs connecting said cross piece to said second frame end to transmit loads from said interconnected leaf springs through said coil springs to said second frame end.

2. (Previously presented) The seat spring assembly of claim 1 or 12 wherein each leaf spring has said substantially flat portion bowed and extending between said V and W arches.

3. (Previously presented) The seat spring assembly of claim 1 or 12 wherein there are 3-6 leaf springs for each seating position and a helper spring is attached to at least two of every 4 leaf springs, said helper spring being attached at one helper spring end between the first leaf spring end and the first frame end, and the helper spring other end projecting below its respective leaf spring and extending for a length less than the length of the leaf spring.

4. (Previously presented) The seat spring assembly of claim 1, or 12 wherein

the W arches when present have radii that permit each of such leaf springs to flex to extend each of such leaf springs and to accommodate twisting of each of such leaf springs.

5. (Previously presented) The seat spring assembly of claim 1, 11 or 12 wherein

there are 4 leaf springs for each seating position and the first and second sides of the frame are formed with a dropped center position between front and rear downwardly depending segments for clearance.

6. (Currently amended) The seat spring assembly of claim 1, 11 or 12 wherein

the frame is a U-shaped frame having first and second sides interconnected by said second end at the bottom of the U, and the first end crosses the opening on the U;

the leaf springs are formed and arranged to have [[one]] said W arch located proximate the frame first second ends where the springs are joined to the cross piece, and/or [[a]] said V [[or front]] W arch proximate the first leaf end; and

[[a]] said substantially flat portion[[,]] is slightly bowed and extends between said [[V or]] W arch and [[the opposite end of said leaf spring or between the V and]] said W arch [[or between the first end and front W arches]].

7. (Currently amended) The seat spring assembly of claim 1 [[, 11]] or 12 wherein a helper spring mounted in association with each of said leaf springs and said first end, said helper spring having a first leg sandwiched between the leaf spring and said first end and an angled second leg that projects inwardly, in the same direction as the axis of the leaf spring, and downwardly, so that as leaf spring flexes, the helper spring free end makes contact and thereby provides additional support and spreads the load on the said leaf spring with which said helper spring is associated over a broader area than the point of contact with cross member that would occur in the absence of helper said spring; and

adjacent rear downwardly depending mounting plates on each of said sides, said plates enabling mounting of the spring assembly to seat arms or for connection to mechanisms or seat backs.

8. (Currently amended) The seat spring assembly of claim 1, 11 or 12 wherein [[the]] a coil spring[[s are]] is attached to each leaf spring end to provide a heavier duty spring unit.

9. (Previously presented) The seat spring assembly of claim 1, 11 or 12 wherein each W arch is formed and arranged with five formed radii that can

flex to provide extension and accommodate twisting of said leaf springs which leaf springs are sufficiently wide to best follow the contour of the seat cushion for maximum occupant seating comfort, and allow the flat leaf spring material to flex without setting up fatigue stresses at the ends of said leaf springs.

10. (Currently amended) The seat spring assembly of claim 1 [[, 11]] or 12 wherein:

[[the]] said coil springs are generally disposed at the end of each of said leaf springs and in the spaces between [[the]] said leaf springs;

helper springs are attached to each of said leaf springs between the first leaf spring end and the first frame end, and the helper springs extend below its respective leaf spring for a length less than the length of the leaf spring, said helper spring having a fixed end and a free end; and

each of said leaf springs has said substantially flat portion bowed.

11. (Currently amended) A seat spring assembly for a seat base comprising:

a frame having a first and a second frame end with first and second sides connected to the first and second transverse frame ends;

a plurality of flat leaf springs having leaf spring first ends connected to the first frame end and leaf spring second ends connected to the second frame end;

each leaf spring having one V or W arch adjacent the leaf spring first or second end;

each leaf spring has a substantially flat center portion extending longitudinally and aligned horizontally to define a seating support surface;

a cross piece, said cross piece spanning and interconnecting said leaf spring second ends, said leaf spring second ends being attached to said cross piece; and

a plurality of coil springs, said coil springs connecting said cross piece to said second frame end to transmit loads from said leaf spring through said coil spring and second cross piece to said second frame end;

the leaf spring has said substantially flat portion bowed and extending between the V and W arches;

there are 3-6 leaf springs for each seating position and a helper spring is attached to at least two of every 4 leaf springs, said helper spring having a fixed end and a free end, with a spring body therebetween, and being attached at [[one]] a fixed helper spring end between the first leaf spring end and the first frame end, and the helper spring [[other]] free end projecting below its respective leaf spring in a cantilevered fashion and extending for a length less than the length of the leaf spring said helper spring providing additional resilience when said body contacts said leaf spring.

12. (Currently amended) A seat spring assembly for a seat base adapted to support a sitting load comprising:

a frame having a first and a second frame end with first and second sides connected to the first and second transverse frame ends;

a plurality of flat leaf springs having leaf spring first ends connected to the first frame end and leaf spring second ends connected to the second frame end, said leaf springs having top and bottom surfaces and first and second side edges;

each leaf spring having one V arch adjacent and spaced inwardly from the leaf spring first end, with the V opening upwardly, and one W arch adjacent and spaced inwardly from the leaf spring second end, with the W opening upwardly, wherein [[the top and bottom surfaces remain substantially parallel to one another and]] the side edges remain substantially parallel to one another in the V arch and W arch and the spring flexes responsive to the sitting load whereby the V arch and W arch tend to open responsive to the load and close as the load is released and said flat portion flexes responsive to the load;

each leaf spring has a substantially flat center portion extending longitudinally between the V arch and W arch and aligned horizontally to define a seating support surface;

a cross piece, said cross piece spanning and substantially perpendicularly interconnecting said leaf spring second ends, said leaf spring second ends being attached to said cross piece; and

a plurality of coil springs, said coil springs connecting said cross piece to said second frame end to transmit loads from said interconnected leaf springs through said coil springs to said second frame end.